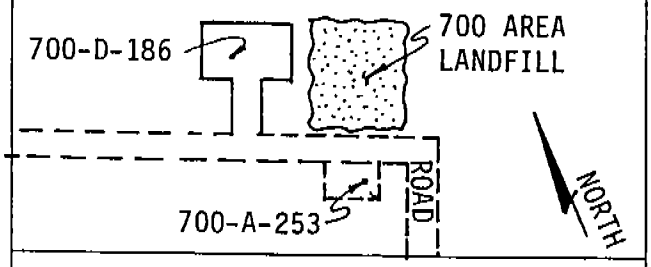
LITHOLOGIC LOG

LOCATION MAP:



SE 1/4 NW 1/4 SW 1/4 NE 1/4 S 26 T 20S R 3E

SITE ID: NASA-WSTF LOCATION ID: 700-D-186

SITE COORDINATES (ft.):

N 236500.18 E 417181.92

GROUND ELEVATION (ft. MSL): 4885.28

STATE: NEW MEXICO COUNTY: DOÑA ANA

DRILLING METHOD: Mud & Air-Foam Rotary

DRILLING CONTR.: Larjon Drilling Co.

DATE STARTED: 10 November 1989 DATE COMPLETED: 12/21/89

FIELD REP.: R. Cooper

COMMENTS: 0'-54' drilled with mud rotary 12 ¼" bit and reamed to 16"; 10" x 54' steel surface casing; 54'-194' drilled air-foam 9 7/8" bit; 194'-205' with 9" air hammer bit; Bedrock encountered ≈180;. TD = 205'

LOCATION DESCRIPTION:

Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
5			7	Cuttings 0'-205'	0'-180(?) ALLUVIUM (Santa Fe Group): Multiple colors of cuttings; washed cuttings are predominantly medium light gray (N6) to dark gray (N3); unwashed samples contain pale reddish brown (10 R 5/4) to moderate red (5 R 5/4) silt and clay. Cuttings range in size from silt-size to 25 mm (1 inch) with a average size of 5 mm (0.20 inches). Cuttings are subrounded to angular with a larger percentage being subrounded. Alluvium is unconsolidated to well consolidated, poorly-sorted pebble to boulder conglomerate containing clasts of very light gray (N8) to grayish black (N2) limestone and dolomite; dark reddish brown (10 R 3/4) to dusky red (5 R 3/4) siltstone; white (N9) to dirty white iron-staining rhyolite; translucent to milky white quartz; moderate reddish brown (10 R 4/6) granite; light brown (5 YR 5/6) to moderate brown (5 YR 4/4) sandstone; light olive gray (5 Y 3/2) & dusky red (5 R 3/4) porphyritic andesite. The upper 5 feet of this section is caliche rich and contains the above mentioned clasts and light brown (5 YR 6/4) silt and clay. From 5 feet to 166 feet limestone is the predominant clast. Samples are reddish brown from silt and clay particles weathering from the Abo and Love Ranch formations. Cuttings of the Abo siltstone are also abundant throughout this interval and range from 10% to 40% of sample. From 166 feet to the top of bedrock (between 180' & 185') the alluvium is well consolidated and drilling rates are similar to that of the bedrock. Clast are mostly limestone and are subrounded to subangular. Caliche coatings are present on some of the clasts and small pieces of caliche are individual cuttings. Caliche described is the carbonate matrix containing silt and sand grains between the alluvial clasts.
10			9		
15			10		
20			12		
25			15		
30			20		
35			12		
40			7		
45			12		0'-5' Light brown clay (5 YR 6/4).
50			13		5'-166' Moderate red (5 R 5/4) to pale reddish (10 R 5/4) brown clay & silt.

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Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
50				Cuttings (cont'd)	
55			30		
60			5		
65			9		
70			10		
75			7		
80			8		
85			6		85'-100' Mostly coarse sand-size with some gravel-size cuttings.
90			6		
95			13		
100			2.5		100'-105' Slightly more gravel but still mostly coarse sand.
105			5		105'-110' Mostly coarse sand-size cuttings.
110			6		110'-180' Mostly gravel-size cuttings.
115			7		

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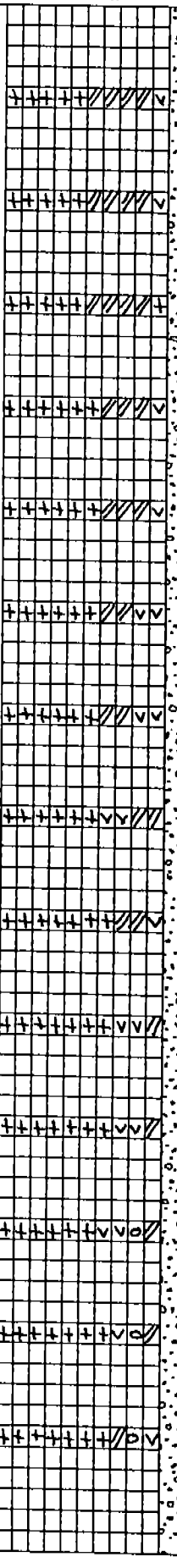
Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
115				Cuttings (cont'd)	
120			6		
125			5		
130			5		
135			4		
140			5		
145			7		
150			5		
155			4		
160			5		
165			6		166'-180' Alluvium is well consolidated; cuttings are subrounded to angular; possible minor amounts of silica replacement of limestone.
170			19		
175			12		
180			12		

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Depth	Visual %	Lith	Drilling Time Scale: min	Sample Type and Interval	Lithologic Description
180				Cuttings (cont'd)	180'-185' Top of bedrock; exact contact cannot be determined because of similar drill rates of alluvium and bedrock.
185			14		180'(?)-205' Hueco Limestone: Light gray (N7) to medium dark gray (N4) fractured limestone. Limestone is weathered and is altering to sparite. Possible silica replacement. Fractures are filled with white (N9) calcite and moderate orange pink caliche. Cuttings are angular and have an average size of 3-4 mm (0.12 - 0.16 inches).
190			4		
195			44		194'-205' Changed drilling method to air-foam with an air hammer bit.
200			122		
205			3		Total Depth = 205'
210					
215					
220					
225					
230					
235					
240					
245					